
SL-1 telephones

This chapter provides feature, add-on module, and specification information for SL-1 telephones.

Functional description

This section provides feature and software requirement information for SL-1 telephones.

General features

SL-1 telephones have the following general features.

QSU1 telephone

QSU1 telephones previous to vintage F have feature and control keys mounted on the circuit board. The dial pad is connected to the board by a cable harness and plug and is detachable, allowing for easy replacement. The control and feature keys are not detachable from the board. The circuit board is not field-replaceable. The QSU1 telephone has the following features:

- Chameleon ash base and handset, black faceplate
- optional snap-in colored faceplates
- 12-button dial pad
- 10 feature keys (8 with Light Emitting Diode [LED] indicators)
- 3 fixed keys for volume up, volume down, and Hold
- 6-conductor line cord
- wired to accept add-on modules

Phase II QSU1 telephone

The QSU1 telephone of vintage F is referred to as “Phase II” because it incorporates enhancements over the Phase I QSU1. The Phase II enhancements also apply to the QMT1 and QMT2 add-on modules, outlined later in the chapter. QSU1 telephones of vintage F have the dial pad, control keys, and feature keys mounted permanently on a keyboard that is mounted on, and detachable from, the circuit board. In the event of a fault on the keyboard, the keyboard as a whole must be replaced. Circuit boards on Phase II QSU1 telephones are not field-replaceable.

Phase III QSU1 telephone

The Phase III QSU1 telephone incorporates minor mechanical enhancements over the Phase II telephone. In addition, many of the discrete components of the Phase II telephone have been placed on a single chip.

QSU3 telephone

The QSU3 telephone has the same features as the QSU1F telephone and an additional 16-digit display above the dial pad (see [Figure 28](#)). The QSU3 telephone requires a 24 V plug-in transformer.

QSU6, QSU7 telephones

The QSU6 and QSU7 telephones are designed for use with Automatic Call Distribution (ACD). They share essentially the same features except for a 16-digit display on the QSU7. The QSU6 and QSU7 have the same components as their standard non-ACD counterparts (QSU1 and QSU3), with the exception of specially designed Printed Circuit Boards (PCBs). These PCBs contain circuitry that accommodates the two jacks. The jacks are located on the telephone as shown in [Figure 29](#). The agent’s jack is used for a two-way conversation; the supervisor’s jack provides a listen-only connection.

QSU6 and QSU7 telephones are not equipped with handsets or headsets, in order to give the user the opportunity to choose their preferred equipment.

The QSU6 and QSU7 telephones require a 24 V plug-in transformer.

QSU60 telephone

The QSU60 telephone is similar to the QSU1F with some minor alterations to meet market requirements in the United States.

QSU61 telephone

The QSU61 telephone is similar to the QSU3 with some minor alterations to meet market requirements in the United States.

QSU71 telephone

The QSU71 telephone is similar to the QSU1 in that it has the dial pad, control keys, and feature keys permanently mounted on the circuit board. The major difference, however, is that it also has a Handsfree enable /disable plug located on the circuit board. The QSU71 telephone has the following unique features:

- integrated Handsfree circuit (can be disabled if not required)
- volume control toggle for speaker and ringer volume
- 8 programmable feature keys with associated LED indicators
- fixed Handsfree key with associated LED indicator

Automatic Answerback (AAB) can be provided on the QSU71 by installing the QKK8 interface kit internally in the base of the telephone. (AAB can still be provided if Handsfree is disabled.)

The QSU71 has no provision for external add-on modules.

[Figure 30](#) shows the QSU71 telephone.

Figure 28
QSU3 telephone

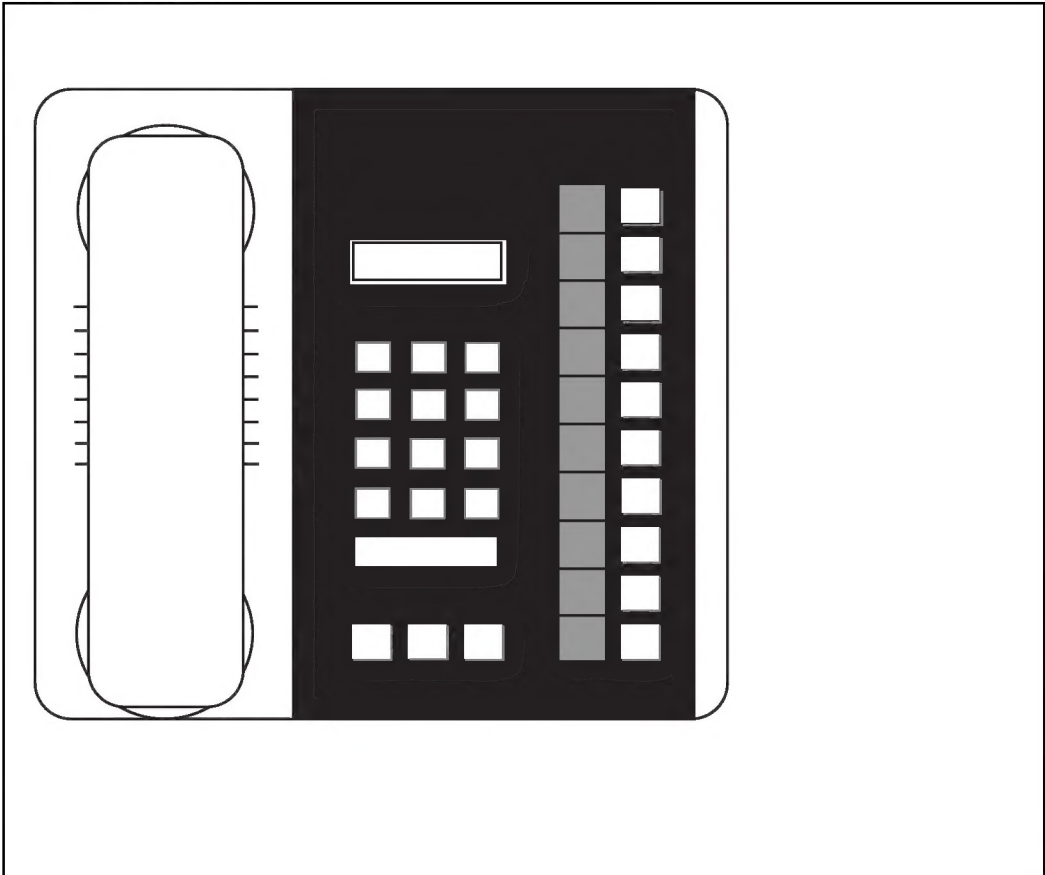


Figure 29
QSU7 telephone for ACD operation

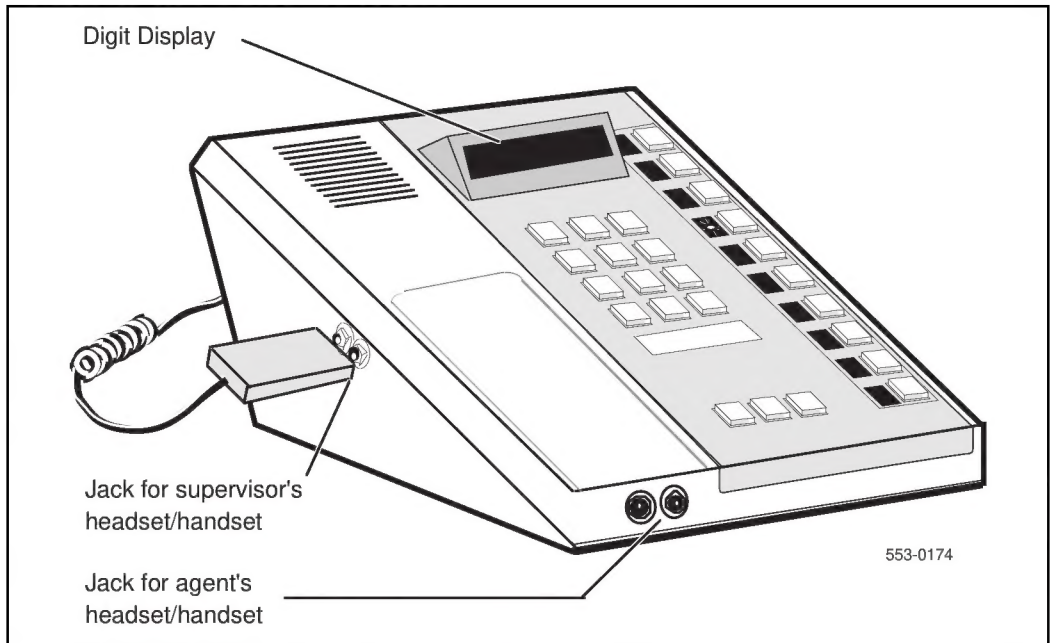
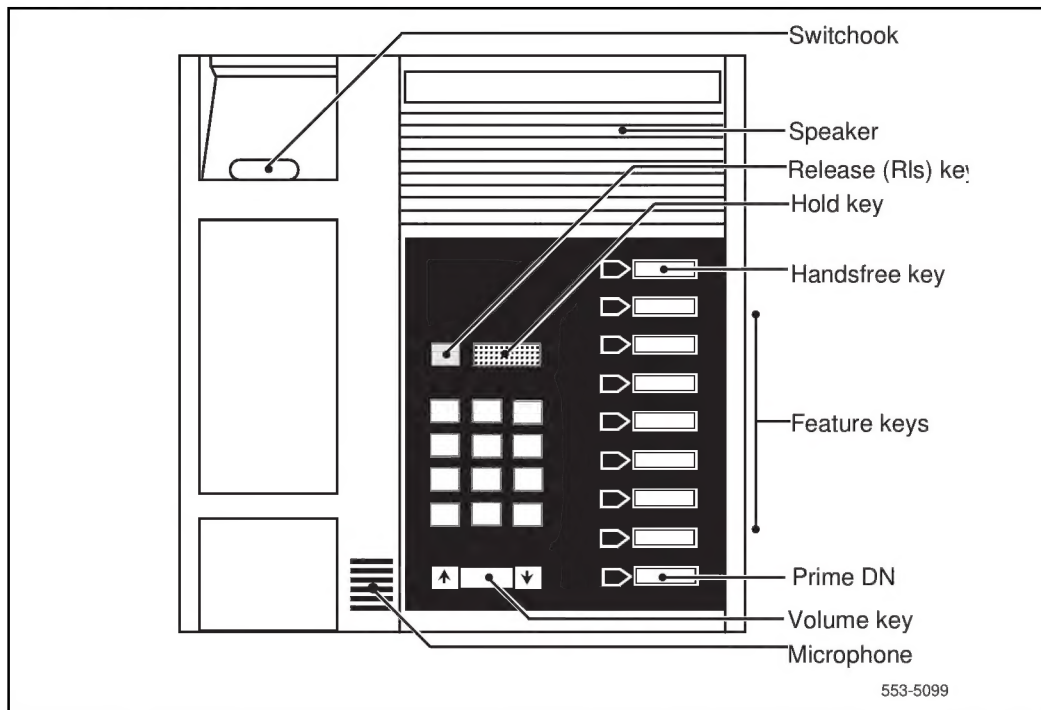


Figure 30
QSU71 telephone



Physical characteristics

SL-1 telephones have the following physical characteristics.

Housing

The housing of SL-1 telephones consists of a molded plastic base that holds the circuit board and control feature keys.

A filler plate is located on each side of the SL-1 telephone. A LOGIC Handsfree unit, a Group Listening Switch, or a Light Probe kit can be installed in place of the left-hand filler plate. An add-on key module can be installed in place of the right-hand filler plate.

SL-1 add-on modules provide the user with the following features:

- additional feature keys
- busy lamp field
- Handsfree operation
- headset operation
- operation for sight-impaired users
- integrated voice and data operation

Cover

Molded in the left-hand side of the cover are two depressions to accommodate the handset. The speaker grill is located between these depressions, under the handset.

Note: QSU6 and QSU7 telephones for ACD do not have handset depressions as they are intended for use with headsets.

Designation window

The designation window located below the dial pad provides a display for the area code and prime Directory Number (DN) of the telephone.

Faceplate

Each SL-1 telephone is supplied with a standard black snap-in faceplate. Four optional color faceplates are available that must be ordered separately from the SL-1 telephone. The optional faceplate colors are as follows:

- Deep Blue Regular telephone
- Dark Brown Regular telephone
- Deep Blue Digit Display telephone
- Dark Brown Digit Display telephone

Note: The optional blue faceplates are not available in the United States. Bracketed ordering numbers are required on new telephones not equipped with a faceplate contactor.

Feature keys

Located on the right-hand side of each telephone is a key strip holding ten programmable feature keys, the first eight keys having associated LED indicators. The keys associated with LEDs can be programmed with any feature, including those requiring visual indications, such as Directory Numbers, Call Transfer, and Call Forward. The remaining two keys do not have LEDs and can be programmed for features that do not require indications, such as Release or Privacy Release.

Feature selection is made by pressing and releasing the required feature key. If the key selected has an LED indicator associated with it, the status of the feature will be displayed.

LED indicators

The LED indicators are capable of displaying the following states:

Function	LED state
idle	off
active	on (steady)
ringing	flash (60 Hz)
hold (waiting)	fast flash (120Hz)

Fixed keys

The three fixed keys located below the dial pad perform the same functions on all telephones. These functions are volume up, volume down, and hold.

SL-1 telephones use two keys, one to increase and one to decrease volume. Each time one of the keys is pressed, the volume of a signal through the loudspeaker is changed one step, up or down. The signal levels can only be changed when that signal is present at the loudspeaker. Once set, the volume is stored in the system memory and further signals will be reproduced at that level. The signals that can be separately adjusted are as follows:

- Group 1—Ringing tone
- Group 2—Buzz
- Group 3
 - Speech
 - Busy tone
 - Dial tone
 - Overflow tone
 - Ringback tone

The volume of each group can be adjusted independently of other groups. Adjustment of one level in Group 3 affects the level of all signals in that group.

Handset

The handset used with the QSU1 and QSU3 telephones is the standard G-3 Chameleon ash unit. The handset is connected to the circuit board by the handset cord.

A G6QDC Amplified Handset (A0291605) provides receiver amplification for the hearing impaired. G6QDC can be used on QSU1, QSU3, QSU6, QSU7, QSU60, and QSU61 telephones if the current limiting kit, P0630408, is also installed.

Modular connector compatibility

Modular connectivity uses standard miniature modular jacks and plug-ended cords to connect SL-1 telephones to the Meridian 1 system, permitting greater ease of installation, replacement, and mobility. SL-1 telephones compatible with modular telephones have a -QM suffix at the end of their Q-code designation (QSU60BQM).

Wall mounting

The SL-1 telephones are designed for either desktop use or wall-mounted installation. A P0515934 wall-bracket assembly is needed for wall-mounting.

A QBP7A wall-bracket is required in place of the P0515934 bracket when a LOGIC Handsfree unit is provided. No bracket is necessary for desktop use.

QSU71 physical characteristics

The QSU71 has the following unique characteristics:

- Speed Call directory

A card located on the face of the top cover (to the left of the dial pad) is provided for recording your Speed Call directory or frequently called telephone numbers. Space is also provided on this card for recording the area code and prime Directory Number of the telephone.

- Feature keys

A key strip holding nine nonlocking keys with associated LED indicators is located on the right-hand side of each telephone. The top key is reserved for Handsfree. The remaining eight keys can be programmed for any X11 feature.

— Fixed keys

The Hold and Release keys are located above the dial pad.

Pressing the left side of the volume control key decreases the volume one level for each separate depression. If the volume was at its minimum, it will remain the same. Pressing the right side of the volume control key increases the volume one level for each depression. If the volume was at its maximum, it will remain the same. There are eight volume levels.

Once set, the selected volume will remain at that level until changed again. The signals that can be adjusted are as described above (Group 1, 2, and 3) for the other SL-1 telephones.

The Handsfree key is located at the top of the feature key row.

This key is used to turn the Handsfree on or to mute while in the Handsfree mode. Handsfree is turned off by picking up the handset or pressing the Release key. An associated LED indicates status:

off	Handsfree not activated
on	Handsfree activated
fast flashing	Handsfree muted

Each QSU71 telephone is shipped with Handsfree enabled, but Handsfree can be disabled if required. The Handsfree enable/disable plug is located on the circuit board inside the telephone. Handsfree design is optimized for personal operation (the microphone is directional), not group conference. The Handsfree key must be assigned as KEY 8 NUL when inputting SL-1 telephone data. See *X11 input/output guide* (553-3001-400) for more information.

Add-on modules and interface kits

This section describes the add-on modules and interface kits available for SL-1 telephones.

SL-1 telephones can be expanded by using add-on modules and interface kits. (See [Figure 31](#) for examples of add-on modules and [Table 13](#) for a matrix of available add-on modules and interface kits.)

The available add-on modules and interface kits are listed below:

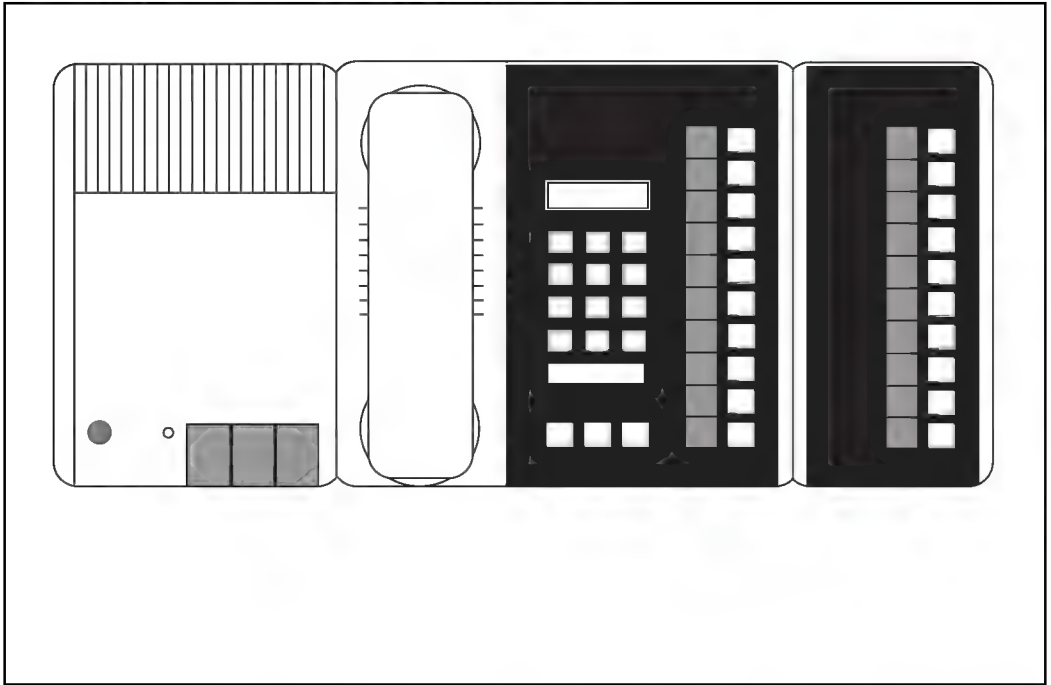
- QMT1, 10-key/lamp add-on module
- QMT2, 20-key/lamp add-on module
- QMT3, Lamp Field Array
- QKK1, Handsfree interface kit
- QKK3, Automatic Handsfree interface kit
- QKK8, Auto Answerback interface kit (QSU71 only)
- QKN1, Headset interface kit
- QSAM3, Group Listening switch
- QKM13, Light Probe kit
- Add-on data modules

Note: No add-on modules are available for the QSU71 telephone.

The add-on modules and interface kits can be plugged into the SL-1 telephone so that on-site modifications can be made at any time. A 24 V power supply (either a transformer or centralized power supply) is required when an SL-1 telephone is equipped with any of the following:

- QMT1 10 button or QMT2 20 button add-on module
- Digit Display
- Logic Handsfree Unit
- QKK3 Automatic Handsfree interface kit

Figure 31
QSU3 with Handsfree unit and QMT1 add-on module



In addition, a 15 V power supply (either a transformer or centralized power supply) is required when the telephone is equipped with the following:

- QMT3 Lamp Field Array

The following are the available power supplies:

- QUT1 Centralized Power Supply (15 and 24 V)
- P0547127—24 V transformer
- P0547128—15 V transformer

QMT1 and QMT2 add-on modules

The QMT1 add-on key module is equipped with a single key/lamp strip. The strip consists of ten nonlocking keys, the bottom eight keys having associated LED indicators. The keys are arranged in a single vertical strip with the LEDs adjacent to the keys.

The QMT2 add-on key module is equipped with two key/lamp strips, each strip containing ten keys and eight LED indicators.

Physical description

The QMT1 and QMT2 add-on modules consist of a molded plastic case, manufactured from the same high-impact resistant material and with the same profile as the SL-1 telephone. Housed within the module are printed circuit boards (one for the QMT1; two for the QMT2) that hold the electronic components, cables, and jacks, and to which are fastened the key and LED strips. For Phase II QMT1 and QMT2, the keys are mounted on a keyboard, which, in turn, is mounted on the circuit board.

— Each add-on module is supplied with a standard black faceplate. The following color faceplates can be ordered separately:

- for 10-button modules
P0537925 deep blue
P0537926 dark brown
- for 20-button modules
P0538025 deep blue
P0538026 dark brown

Functional description

The QMT1 and QMT2 add-on key modules are used to expand the line and feature keys of an SL-1 telephone. Any feature that can be assigned to a key on the basic telephone can be assigned to the add-on module keys. The operation of a feature assigned to these keys is identical to the operation of the same features assigned to a key on the SL-1 telephone itself.

Module attachment

Located on the right-hand side of the SL-1 telephone (except QSU71) is a filler plate. This plate can be removed to allow the addition of add-on key modules. The add-on modules are equipped with a plug, an adapter, and a plug-ended cable. The basic installation procedure follows:

- 1 Remove the filler plate from the telephone.
- 2 Lock the add-on module to the telephone with the plug adapter.
- 3 Insert the add-on module plug into the feature socket within the telephone.

See *Telephone and attendant console installation* (553-3001-215) for more information.

QMT3 Lamp Field Array module

The QMT3 (Lamp Field Array) is an add-on module that displays the busy-idle status of 150 successive stations beginning at any 100 point in the numbering plan (for example, 2400 to 2550). One or two QMT3 modules can be assigned per customer group. Hardware required to attach the module to a station telephone consists of the following:

- 24 V power supply
- 15 V power supply

Because all possible designations cannot be screened onto the module faceplate, a label designation sheet is provided with every QMT3 for this purpose. The characters are numbered from 10 to 995 in increments of 5.

Part numbers are as follows:

- QMT3, A0263526 (Lamp Field Array module)
- P0560497 (designation labels)
- QUT1 Centralized Power Supply

or

- P0547127 (24 V Transformer)
- P0547128 (15 V Transformer)

QKK1 Handsfree/QKK3 Automatic Handsfree interface kits

The QKK1 Handsfree/QKK3 Automatic Handsfree Interface kits are used to modify an SL-1 telephone (except QSU71) for the addition of a QSU1-type Logic or CONFERENCE 2000 Handsfree unit (see [Figure 31](#)) and/or to provide remote power to extend the operating range of the telephone from a maximum loop resistance of 189 to 252 Ω (for length of cable see [Table 12](#)). For a detailed description of the Handsfree unit, see *QSU1 Companion and Logic Handsfree units* (512-6251-200).

The QKK3 Automatic Handsfree Interface kit feature is used for Automatic Answerback. Automatic Answerback (AAB) is available with selected software generics. Refer to *X11 features and services* (553-3001-305) for availability of the AAB feature.

[Table 12](#) shows the maximum loop length for given gauges of cable for the SL-1 telephones (except QSU71) with and without the QKK1 or QKK3. The QSU71 can achieve the “with kit” loop length listed in [Table 12](#) with the addition of a P0547127 power supply.

Table 12
Operating range of SL-1 telephone

Gauge of cable (AWG)	Maximum allowable cable length			
	Without kit		With kit	
	Feet	Meters	Feet	Meters
22	6000	1830	8000	2450
24	3700	1150	5500	1650
26	2300	675	3700	1110
Note: These limits are based on a cable capacitance of 85 nF per mile (1.6 km).				

QKK8 interface kit

QKK8 (provisioned for QSU71 telephones) mounts internally in the base of the QSU71 telephone. QKK8 provides the hardware to allow AAB.

QKN1 headset interface kit

The QKN1 headset interface kit provides jacks to allow an NE-52, VENTURE 1, or equivalent type of headset to be used with the SL-1 telephone (except QSU71). The interface kit consists of an ON/OFF switch, a jack for the headset, and related circuitry and is intended to mount in the left-hand filler plate position. For a full description of the Venture 1 headset, see *Venture 1 QSR2 type head telephone set* (028-3551-200).

The ON/OFF switch allows handset or headset operation to be selected at any time without the loss of transmission.

The interface kit can be installed in the field without removing the telephone from the customer's premises.

QSAM3 Group Listening switch

The SL-1 telephone (except QSU71) can accommodate an optional group listening switch designed to fit in the filler plate opening on the left side of the telephone. The QSAM3 is compatible with Phase II and subsequent SL-1 telephones.

[Table 13](#) lists the add-on modules available for SL-1 telephones.

Table 13
Transformer and add-on module matrix

Unit	Max. number of feature keys	Number of 24V transformers (P0547127) required	Number of 15V transformers (P0547128) required
QSU1	60	1	0
QSU3	60	1	0
QSU1 + HU	60	1	0
QSU3 + HU	60	1	0
QSU1 + LFA	50	1	1
QSU3 + LFA	50	1	1
QSU1 + HU + LFA	50	1	1
QSU3 + HU + LFA	50	1	1
QSU1 + Headset	60	0	0
QSU1 + AAB	50	1	0
QSU3 + AAB	50	1	0
QSU1 + AAB + LFA	40	1	1
QSU3 + AAB + LFA	40	1	1
Legend:			
HU	Handsfree Unit		
LFA	Lamp Field Array		
AAB	Automatic Answerback		

For step-by-step installation instructions for add-on modules, see *Telephone and attendant console installation* (553-3001-215).